

LISTING OF CLAIMS

Please amend the claims of the present application as set forth below. More specifically, a detailed listing of all claims is provided below. This listing of claims will replace all prior versions and listings of claims in the application. Changes to the claims are shown by strikethrough or double brackets (for deleted matter) and underlining (for added matter).

By way of overview, claims 1, 2, 5-15, and 18-46 are currently pending. The status of all of the claims is indicated below:

- a) Claims 1, 14, 27, and 37 are currently amended;
- a) Claims 2, 6-13, 15, 19-26, 28-36, and 38-46 are original;
- b) Claim 5 and 18 were previously presented; and
- c) Claims 3, 4, 16, and 17 are canceled without prejudice or disclaimer.

Listing of Claims

What is claimed is:

1. (Currently amended) A method for reading information from an optical storage medium, comprising:

- providing a cache memory having multiple cache segments;
- receiving a request for information stored on the optical storage medium;
- determining whether the requested information is stored in one of the cache segments;

- retrieving the requested information from said one of the cache segments if the information is determined to be stored in the cache memory; and

1 retrieving the requested information from the optical storage medium itself if the
2 information is determined not to be stored in the cache memory,

3 wherein the cache memory includes a first group of at least one cache segment
4 dedicated to handling a first type of information, and a second group of at least one cache
5 segment dedicated to handling a second type of information, and

6 wherein the first type of information pertains to information that is designated for
7 retrieval in a streaming transfer mode in which parts of the information are retrieved on
8 an as-needed piecemeal basis as the information is consumed, and the second type of
9 information pertains to information that is designated for retrieval in a bulk transfer mode
10 in which a bulk quantity information is retrieved as a whole, not in multiple parts on an
11 on-needed piecemeal basis.

12
13 2. (Original) The method according to claim 1, wherein the retrieved information
14 pertains to a game application.

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16 3. (Canceled).

17
18 4. (Canceled).

19
20 5. (Previously presented) The method according to claim 1, wherein the first type
21 of information pertains to audio game information, and the second type of information
22 pertains to game level load information.
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1 6. (Original) The method according to claim 1, wherein the determining of
2 whether the requested information is stored in one of the cache segments includes
3 determining whether the requested information is stored in a cache segment identified in
4 hint information received from a host system.

5
6 7. (Original) The method according to claim 1, when the requested information is
7 retrieved from said one cache segment, the method further comprising:

8 moving a pointer associated with said one cache segment ahead to define free
9 cache space;

10 pre-fetching information from the optical storage medium; and

11 filling the pre-fetched information into the free cache space of said one cache
12 segment.

13
14 8. (Original) The method according to claim 7, wherein the pre-fetching is
15 performed at a time in which a drive mechanism is not otherwise engaged performing
16 other tasks.

17
18 9. (Original) The method according to claim 7, wherein the filling proceeds in
19 circular manner by wrapping around from an end of said one cache segment to a
20 beginning of said one cache segment.

21
22 10. (Original) The method according to claim 1, when the requested information
23 is retrieved from the optical storage medium, the method further comprising:
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1 determining which one of the cache segments should receive the requested
2 information based on an eviction algorithm;

3 flushing the determined cache segment of its current contents; and

4 storing the information retrieved from the optical storage medium in the
5 determined cache segment.

6
7 11. (Original) The method according to claim 10, wherein the eviction algorithm
8 determines the cache segment to receive the requested information by identifying the
9 cache segment which has been least recently used.

10
11 12. (Original) The method according to claim 10, wherein the eviction algorithm
12 determines the cache segment to receive the requested information by identifying the
13 cache segment which has been least frequently used.

14
15 13. (Original) A computer readable medium including machine readable
16 instructions for implementing each of the receiving, determining, retrieving information
17 from the cache memory, and retrieving information from the optical storage medium of
18 claim 1.

19
20 14. (Currently amended) An apparatus for reading information from an optical
21 storage medium, comprising:

22 a cache memory having multiple cache segments;

23 cache management logic, including:
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1 logic configured to receive a request for information stored on the optical
2 storage medium;

3 logic configured to determine whether the requested information is stored
4 in one of the cache segments;

5 logic configured to retrieve the requested information from said one of the
6 cache segments if the information is determined to be stored in the cache
7 memory; and

8 logic configured to retrieve the requested information from the optical
9 storage medium itself if the information is determined not to be stored in the
10 cache memory,

11 wherein the first type of information pertains to information that is designated for
12 retrieval in a streaming transfer mode in which parts of the information are retrieved on
13 an as-needed piecemeal basis as the information is consumed, and the second type of
14 information pertains to information that is designated for retrieval in a bulk transfer mode
15 in which a bulk quantity information is retrieved as a whole, not in multiple parts on an
16 on-needed piecemeal basis, and

17 wherein the first type of information pertains to audio game information, and the
18 second type of information pertains to game level load information.

19
20 15. (Original) The apparatus according to claim 14, wherein the retrieved
21 information pertains to a game application.

22
23 16. (Canceled).
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1 17. (Canceled).

2
3 18. (Previously presented) The apparatus according to claim 14, wherein the first
4 type of information pertains to audio game information, and the second type of
5 information pertains to game level load information.

6
7 19. (Original) The apparatus according to claim 14, wherein the logic for
8 determining is configured to determine whether the requested information is stored in a
9 cache segment identified in hint information received from a host system.

10
11 20. (Original) The apparatus according to claim 14, wherein the logic for
12 retrieving the requested information from said one cache segment further comprises:

13 logic configured to move a pointer associated with said one cache segment ahead
14 to define free cache space;

15 logic configured to pre-fetch information from the optical storage medium; and

16 logic configured to store the pre-fetched information in the free cache space of
17 said one cache segment.

18
19 21. (Original) The apparatus according to claim 20, wherein the logic for pre-
20 fetching is configured to operate at a time in which a drive mechanism is not otherwise
21 engaged performing other tasks.

1 22. (Original) The apparatus according to claim 20, wherein the logic for filling is
2 configured to fill said one cache segment in a circular manner by wrapping around from
3 an end of said one cache segment to a beginning of said one cache segment.

4
5 23. (Original) The apparatus according to claim 14, wherein the logic for
6 retrieving the requested information from the optical storage medium further comprises:

7 logic configured to determine which one of the cache segments should receive the
8 requested information based on an eviction algorithm;

9 logic configured to flush the determined cache segment of its current contents;
10 and

11 logic configured to store the information retrieved from the optical storage
12 medium in the determined cache segment.

13
14 24. (Original) The apparatus according to claim 23, wherein the eviction
15 algorithm determines the cache segment to receive the requested information by
16 identifying the cache segment which has been least recently used.

17
18 25. (Original) The apparatus according to claim 23, wherein the eviction
19 algorithm determines the cache segment to receive the requested information by
20 identifying the cache segment which has been least frequently used.

21
22 26. (Original) A computer readable medium including machine readable
23 information for implementing the cache memory and each of the logic recited in claim
24 14.

1
2 27. (Currently amended) A method for reading information from a storage
3 medium, comprising:

4 providing a cache memory having multiple cache segments, wherein the cache
5 memory includes a first group of at least one cache segment dedicated to handling a first
6 type of information designated for retrieval in a streaming transfer mode in which parts of
7 the information are retrieved on an as-needed piecemeal basis as the information is
8 consumed, and a second group of at least one cache segment dedicated to handling a
9 second type of information designated for retrieval in a bulk transfer mode in which a
10 bulk quantity information is retrieved as a whole, not in multiple parts on an on-needed
11 piecemeal basis;

12 receiving a request for information stored on the storage medium;

13 determining whether the requested information is stored in one of the groups of
14 cache segments;

15 retrieving the requested information from said one of the groups of cache
16 segments if the information is determined to be stored in the cache memory; and

17 retrieving the requested information from the storage medium itself if the
18 information is determined not to be stored in the cache memory.
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20 28. (Original) The method according to claim 27, wherein the first type of
21 information pertains to audio game information, and the second type of information
22 pertains to game level load information.
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1 29. (Original) The method according to claim 27, wherein the determining
2 whether the requested information is stored in one of the groups of cache segments
3 includes determining whether the requested information is stored in a cache segment
4 identified in hint information received from a host system.

5
6 30. (Original) A computer readable medium including machine readable
7 instructions for implementing each of the receiving, determining, retrieving information
8 from the cache memory, and retrieving information from the storage medium of claim 27.

9
10 31. (Original) A method for reading information from a storage medium,
11 comprising:

12 providing a cache memory;
13 receiving a request for information stored on the storage medium;
14 determining whether the requested information is stored in the cache memory;
15 retrieving the requested information from the cache memory if the information is
16 determined to be stored in the cache memory, including:

17 moving a pointer associated with the cache memory ahead to
18 define free cache space;
19 pre-fetching information from the storage medium; and
20 filling the pre-fetched information in the free cache space of the
21 cache memory; and

22 retrieving the requested information from the storage medium itself if the
23 information is determined not to be stored in the cache memory.
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1 32. (Original) The method according to claim 31, wherein the retrieved
2 information pertains to a game application.

3
4 33. (Original) The method according to claim 31, wherein the pre-fetching is
5 performed at a time in which a drive mechanism is not otherwise engaged performing
6 other tasks.

7
8 34. (Original) The method according to claim 31, wherein the filling proceeds in
9 circular manner by wrapping around from an end of the cache memory to a beginning of
10 the cache memory.

11
12 35. (Original) The method according to claim 31, wherein the storage medium is
13 an optical storage medium.

14
15 36. (Original) A computer readable medium including machine readable
16 instructions for implementing each of the receiving, determining, retrieving information
17 from the cache memory, and retrieving information from the storage medium of claim 31.

18
19 37. (Currently amended) An apparatus for reading information from a storage
20 medium, comprising:

21 a cache memory having multiple cache segments, wherein the cache memory
22 includes a first group of at least one cache segment dedicated to handling a first type of
23 information designated for retrieval in a streaming transfer mode, and a second group of
24 at least one cache segment dedicated to handling a second type of information designated
25

1 for retrieval in a bulk transfer mode, wherein a rate of consumption in the streaming
2 transfer mode is slower than a rate at which information is retrieved, and wherein, in the
3 bulk transfer mode, information is consumed as quickly as it is retrieved;

4 cache management logic, including:

5 logic configured to receive a request for information stored on the
6 storage medium;

7 logic configured to determine whether the requested information is
8 stored in one of the groups of cache segments;

9 logic configured to retrieve the requested information from said
10 one of the groups of cache segments if the information is determined to be
11 stored in the cache memory; and

12 logic configured to retrieve the requested information from the
13 storage medium itself if the information is determined not to be stored in
14 the cache memory.

15
16 38. (Original) The apparatus according to claim 37, wherein the first type of
17 information pertains to audio game information, and the second type of information
18 pertains to game level load information.

19
20 39. (Original) The apparatus according to claim 37, wherein the logic for
21 determining is configured to determine whether the requested information is stored in a
22 cache segment identified in hint information received from a host system.

1 40. (Original) A computer readable medium including machine readable
2 information for implementing the cache memory and each of the logic recited in claim
3 37.

4
5 41. (Original) An apparatus for reading information from a storage medium,
6 comprising:

7 a cache memory;

8 cache management logic, including:

9 logic configured to receive a request for information stored on the
10 storage medium;

11 logic configured to determine whether the requested information is
12 stored in the cache memory;

13 logic configured to retrieve the requested information from the
14 cache memory if the information is determined to be stored in the cache
15 memory, including:

16 logic configured to move a pointer associated with the
17 cache memory ahead to define free cache space;

18 logic configured to pre-fetch information from the storage
19 medium; and

20 logic configured to fill the pre-fetched information in the
21 free cache space of the cache memory; and

22 logic configured to retrieve the requested information from the storage medium
23 itself if the information is determined not to be stored in the cache memory.
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1 42. (Original) The apparatus according to claim 41, wherein the retrieved
2 information pertains to a game application.

3
4 43. (Original) The apparatus according to claim 41, wherein the logic for pre-
5 fetching is configured to perform its operation at a time in which a drive mechanism is
6 not otherwise engaged performing other tasks.

7
8 44. (Original) The apparatus according to claim 41, wherein the logic for filling is
9 configured to proceed in a circular manner by wrapping around from an end of the cache
10 memory to a beginning of the cache memory.

11
12 45. (Original) The apparatus according to claim 41, wherein the storage medium
13 is an optical storage medium.

14
15 46. (Original) A computer readable medium including machine readable
16 information for implementing the cache memory and each of the logic recited in claim
17 41.